What is claimed is:

1. A method of reducing chronic pain in animals by radio frequency (RF) neuromodulation of peripheral nerves of the animal, comprising the steps of:

attaching an active and a dispersive percutaneous probe at respective active and dispersive locations relative to a peripheral nerve of the animal associated with the pain to be reduced;

generating a first pulsed RF signal configured according to a first protocol for coupling to the active and dispersive probes via conductive leads to verify the location of the peripheral nerve; and

generating a second pulsed RF signal configured according to a second protocol for coupling to the active and dispersive probes via the conductive leads after the first pulsed RF signal is withdrawn, to modify propagation of pain sensation in the peripheral nerve without ablation thereof; wherein

at least the active percutaneous probe includes an RF cannula having a conductive spatulate blade conformably attached to a dorsal side of a curved, blunt-ended tubular tip portion of the RF cannula.

2. The method of claim 1, wherein the step of attaching further comprises the steps of:

preparing the active and dispersive locations for attaching the active and dispersive probes to the patient; and

attaching the active and dispersive probes to the respective locations on the patient.

3. The method of claim 2, wherein the step of preparing comprises the steps of:

determining the active location on the skin of the patient proximate a peripheral nerve of the patient associated with the pain to be reduced;

determining the dispersive location on the skin of the patient within approximately ten centimeters of the active location;

preparing the active and dispersive locations antiseptically;

applying a topical anesthetic to the active and dispersive locations; and

making an incision in the patient's skin in at least the active location.

4. The method of claim 2, wherein the step of attaching comprises the steps of:

inserting a first RF cannula having the spatulate blade into the skin of the patient at the active location;

inserting a second RF cannula at the dispersive location; and

inserting RF electrodes into the first and second RF cannulas at the respective active and dispersive locations to establish an electrical connection between the active and dispersive locations; and

measuring the electrical impedance between the active and dispersive locations to verify that the impedance is below a predetermined limit.

5. The method of claim 4, wherein the step of attaching further comprises the step of:

checking the insertion of the first and second RF cannula; and

repeating the measurement of the electrical impedance.

6. The method of claim 1, wherein the step of generating a first pulsed RF signal comprises the steps of:

configuring an RF signal generator having an output for operation in a stimulator mode;

setting signal parameters according to the first protocol;

connecting active and dispersive signal leads from output terminals of the RF signal generator to the respective active and dispersive probes; and

gradually applying the first pulsed RF signal output while monitoring a response of the patient to verify correct location of the active and dispersive probes.

7. The method of claim 6, wherein the stimulator mode comprises a first protocol limited to stimulating the peripheral nerve of the patient within a sensory range for the patient below a normal threshold of pain.

8. The method of claim 6, wherein the first protocol comprises RF signal parameters including at least a pulse amplitude, a pulse repetition rate and a pulse duration, wherein each parameter is characterized by a value.

9. The method of claim 8, wherein typical values for an equine patient include a pulse amplitude adjusted from zero to a threshold of sensation, a pulse repetition rate of approximately 50 Hertz and a pulse duration of approximately 10 milliseconds.

10. The method of claim 8, wherein respective values for pulse amplitude may vary from zero to ten volts, for pulse repetition rate may vary from 1.0 to 500 Hertz and for pulse duration may vary from one-tenth millisecond to 100 milliseconds.

11. The method of claim 8, wherein the pulse repetition rate may be set to provide a one-shot pulse.

12. The method of claim 6, wherein the step of generating a first pulsed RF signal further comprises the step of:

removing the output of the RF signal generator if monitoring the response of the patient during the step of gradually applying the output indicates an incorrect location or signal parameter value.

13. The method of claim 1, wherein the step of generating a second pulsed RF signal comprises the steps of:

removing the active RF electrode from the active RF cannula after reducing the RF generator output to zero;

injecting a predetermined amount of a local anesthetic solution into tissue of the patient proximate the first location using an anesthetic metering device attached to the active RF cannula; and

replacing the anesthetic pumping device with the active RF electrode and verifying the electrical impedance is below a predetermined limit.

14. The method of claim 13, wherein the step of generating a second pulsed RF signal further comprises the steps of:

configuring the RF signal generator having an output for operation in a lesioning mode;

setting signal parameters including according to the second protocol;

verifying connection of the active and dispersive signal leads from output terminals of the RF signal generator to the respective active and dispersive probes; and

applying the output according to the second protocol during a preset period while monitoring one or more responses of the patient.

15. The method of claim 14, wherein the step of generating a second pulsed RF signal further comprises the step of:

removing the active RF electrode from the active RF cannula after reducing the RF generator output to zero;

removing the active and dispersive RF cannulas from the patient; and

applying a topical agent to the patient's skin after cleaning the area proximate the first and second locations.

16. The method of claim 14, wherein the lesioning mode comprises a second protocol for applying a predetermined RF signal to the peripheral nerve in contact with the active RF probe to modify transmission of nerve impulses conveying chronic pain information.

17. The method of claim 14, wherein the second protocol comprises:

RF signal parameters including at least a pulse amplitude, a pulse repetition rate, a pulse duration and a tip temperature, wherein each parameter is characterized by a value.

18. The method of claim 17, wherein respective values for pulse amplitude may vary from zero to 100 volts or zero to 50 watts or zero to 1.0 ampere, for pulse repetition rate may vary from 1.0 to 500 Hertz, for pulse duration may vary from one-tenth millisecond to 100 milliseconds and for tip temperature may vary from body temperature to 90 Degrees centigrade.

19. The method of claim 17, wherein typical values for an equine patient being treated for pain associated with a leg injury include an RF signal applied for approximately five minutes and having a pulse repetition rate of approximately two Hertz, a pulse duration of approximately twenty milliseconds and an output amplitude controlled to maintain a tip temperature of approximately 48 degrees centigrade.

20. The method of claim 17, wherein typical values for an equine patient being treated for pain associated with a back injury include an RF signal applied for approximately seventy seconds and having a pulse repetition rate of approximately 500 Hertz, applied for a continuous duration and an output amplitude controlled to maintain a tip temperature of approximately 80 degrees centigrade.

21. The method of claim 14, wherein the preset period comprises a value from zero to thirty minutes.

22. The method of claim 14, wherein the predetermined limit of the electrical impedance is 350 Ohms.

23. The method of claim 13, wherein the local anesthetic solution is a carbocaine nerve block.

24. The method of claim 1, wherein the chronic pain to be reduced includes pain occurring in the legs or back of animals.

25. The method of claim 1, wherein the chronic pain to be reduced includes pain occurring in the legs or back of animals of the family equinidae.

26. The method of claim 1, wherein the chronic pain to be reduced includes pain occurring in the legs or back of animals of the family equinidae, including chronic pain associated with at least one selected from the group consisting of deep digital flexor tendon, navicular disease, degenerative joint disease and high suspensor structures in the legs and facet joint degeneration and degenerative disc disease in spinal structures of the back.

27. The method of claim 2, wherein the step of attaching further comprises the steps of:

inserting a first RF cannula having the spatulate blade into the skin of the patient at the active location;

inserting first and second needles at the dispersive location; and

inserting an RF electrode into the first RF cannula at the respective active location and connecting dispersive signal leads to the first and second needles at the dispersive location to establish an electrical connection, including tissues of the patient, between the active and dispersive locations; and

measuring the electrical impedance between the active and dispersive locations to verify that the impedance is below a predetermined limit.

28. The method of claim27, wherein the step of attaching further comprises the step of:

checking the insertion of the first and second RF cannula; and

repeating the measurement of the electrical impedance.

29. The method of claim 1, when being employed to treat pain in a large animal patient, wherein the step of generating a first pulsed RF signal is replaced by the step of palpating surface tissues of the large animal patient to verify location of the peripheral nerve associated with the pain to be reduced.

30. Apparatus for reducing chronic pain in animals by radio frequency (RF) neuromodulation of a peripheral nerve of the animal, comprising:

a generator, for generating pulsed RF signals in at least a first mode and a second mode to be coupled via respective active and dispersive conductors through respective active and dispersive probes to respective active and dispersive locations on an animal patient's body, for reducing chronic pain experienced by the animal without ablation of the peripheral nerve;

a set of RF percutaneous probes including at least an active probe and a dispersive probe attached to the respective active and dispersive locations on the animal's body, at least the active probe further comprising an RF cannula having a conductive spatulate blade conformably attached

along a longitudinal axis to a dorsal side of a curved, blunt-ended tubular tip portion of the RF cannula; and

means adapted to connect with the active electrode for administering a liquid substance into the tissue of the animal that is in the active location.

31. The apparatus of claim 30, wherein the first mode of the generator comprises:

a first pulsed signal configured according to a first protocol for stimulating the peripheral nerve of the patient within a sensory range for the patient below a normal threshold of pain to verify correct location of the active and dispersive probes.

32. The apparatus of claim 31, wherein the first protocol comprises:

a plurality of RF signal parameters including at least a pulse amplitude, a pulse repetition rate and a pulse duration, wherein each signal parameter is characterized by a value.

33. The apparatus of claim 32, wherein typical values for an equine patient include a pulse amplitude adjusted from zero to a threshold of sensation, a pulse repetition rate of approximately 50 Hertz and a pulse duration of approximately 10 milliseconds.

34. The apparatus of claim 32, wherein respective values for pulse amplitude may vary from zero to ten volts, for pulse repetition rate may vary from 1.0 to 500 Hertz and for pulse duration may vary from one-tenth millisecond to 100 milliseconds.

35. The apparatus of claim 32, wherein the pulse repetition rate may be set to provide a one-shot pulse.

36. The apparatus of claim 30, wherein the second mode of the generator comprises:

a second pulsed signal configured according to a second protocol for applying a predetermined RF signal to the peripheral nerve in contact with the active probe to modify transmission of nerve impulses conveying chronic pain information;

wherein the second pulsed signal is applied during a preset period while monitoring one or more responses of the patient.

37. The apparatus of claim 36, wherein the second protocol comprises:

a plurality of RF signal parameters including at least a pulse amplitude, a pulse repetition rate, a pulse duration and a tip temperature, wherein each signal parameter is characterized by a value.

38. The apparatus of claim 37, wherein respective values for pulse amplitude may vary from zero to 100 volts or zero to 50 watts or zero to 1.0 ampere, for pulse repetition rate may vary from 1.0 to 500 Hertz, for pulse duration may vary from one-tenth millisecond to 100 milliseconds and for probe tip temperature may vary from body temperature to 90 Degrees centigrade.

39. The apparatus of claim 37, wherein typical values for an equine patient being treated for pain associated with a leg injury include an RF signal applied for approximately five minutes and having a pulse repetition rate of approximately two Hertz, a pulse duration of approximately twenty milliseconds and an output amplitude controlled to maintain a probe tip temperature of approximately 48 degrees centigrade.

40. The apparatus of claim 37, wherein typical values for an equine patient being treated for pain associated with a back injury include an RF signal applied for approximately seventy seconds and having a pulse repetition rate of approximately 500 Hertz, applied for a continuous duration and an output amplitude controlled to maintain a tip temperature of approximately 80 degrees centigrade.

41. The apparatus of claim 37, wherein the preset period comprises a value from zero to thirty minutes

42. The apparatus of claim 30, wherein the generator comprises:

signal generating means, including user-operated controls for setting signal parameter values and active and dispersive signal conductors for coupling an output RF signal from the signal generating means to the active and dispersive locations; and

control means for controlling the RF signal responsive to a predetermined probe tip temperature value.

43. The apparatus of claim 42, wherein the generator further comprises:

readout means for providing parameter value information to the user; and

measuring devices for measuring at least the probe tip temperature and a probe impedance between the active and dispersive probes and outputting measured values from the readout means.

44. The apparatus of claim 30, wherein the active probe further comprises:

an RF cannula having an insulated tubular body for receiving an RF electrode therethrough;

a hub at a first end of the tubular body for interfacing with the RF electrode upon its insertion into the tubular body; and

a blunt-ended and conductive tubular tip extending from a second end of the insulated tubular body, arcuate approximately along a longitudinal axis of the tubular body and including a conductive spatulate blade having an oval-shaped distal end and conformably attached to a dorsal side of the blunt-ended, conductive and arcuate tubular tip.

45. The apparatus of claim 44, wherein the tubular tip extends from the second end of the tubular body by approximately one centimeter and is curved according to a predetermined radius through an included angle in the range of ten degrees to thirty degrees.

46. The apparatus of claim 44, wherein the spatulate blade is attached to the tubular tip along a longitudinal center of the spatulate blade.

47. The apparatus of claim 44, wherein the spatulate blade extends laterally from either side of the tubular tip by a first predetermined dimension and longitudinally past a distal end of the tubular tip by a second predetermined distance.

48. The apparatus of claim 44, wherein the spatulate blade conforms to a smooth, oval profile surrounding the end of the tubular tip.

49. The apparatus of claim 44, wherein the tubular tip includes an orifice proximate a distal end of the tubular tip for releasing a liquid substance therefrom.

50. The apparatus of claim 44, wherein the insulated tubular body is configured to receive an RF electrode configured as a thin, conductive wire that extends through the insulated tubular body into conductive contact with the tubular tip.

51. The apparatus of claim 44, wherein the hub includes a locking interface for securing the RF electrode within the insulated tubular body.

52. The apparatus of claim 30, wherein the dispersive probe comprises:

an RF cannula having an insulated tubular body for receiving an RF electrode therethrough;

a hub at a first end of the tubular body for interfacing with the RF electrode upon its insertion into the tubular body; and

a blunt-ended and conductive tubular tip extending from a second end of the insulated tubular body, arcuate approximately along a longitudinal axis of the tubular body and including a conductive spatulate blade having an oval-shaped distal end and conformably attached to a dorsal side of the blunt-ended, conductive and arcuate tubular tip.

53. The apparatus of claim 52, wherein the tubular tip extends from the second end of the tubular body by approximately one centimeter and is curved according to a predetermined radius through an included angle in the range of ten degrees to thirty degrees.

54. The apparatus of claim 52, wherein the spatulate blade is attached to the tubular tip along a longitudinal center of the spatulate blade.

55. The apparatus of claim 52, wherein the spatulate blade extends laterally from either side of the tubular tip by a first predetermined dimension and longitudinally past a distal end of the tubular tip by a second predetermined distance.

56. The apparatus of claim 52, wherein the spatulate blade conforms to a smooth, oval profile surrounding the end of the tubular tip.

57. The apparatus of claim 52, wherein the tubular tip includes an orifice proximate a distal end of the tubular tip for releasing a liquid substance therefrom.

58. The apparatus of claim 52, wherein the insulated tubular body is configured to receive an RF electrode configured as a thin, conductive wire that extends through the insulated tubular body into conductive contact with the tubular tip.

59. The apparatus of claim 52, wherein the hub includes a locking interface for securing the RF electrode within the insulated tubular body.

60. The apparatus of claim 30, wherein the dispersive probe comprises:

first and second needles coupled to a common dispersive conductor for providing a return path to the generator for the pulsed RF signals.

61. The apparatus of claim 30, wherein the means adapted to connect with the active probe for administering a liquid substance into the tissue of the animal that is in the active location includes a syringe.

62. The apparatus of claim 30, wherein the means adapted to connect with the active probe for administering a liquid substance into the tissue of the animal that is in the active location includes an anesthetic metering device

63. A radio frequency (RF) cannula, comprising:

an insulated tubular body for receiving an RF electrode therethrough;

a hub at a first end of the tubular body for interfacing with the RF electrode upon its insertion into the tubular body; and

a blunt-ended and conductive tubular tip extending from a second end of the insulated tubular body, arcuate approximately along a longitudinal axis of the tubular body and including a conductive spatulate blade having a blade-shaped distal end and conformably attached to a dorsal side of the blunt-ended, conductive and arcuate tubular tip.

64. The RF cannula of claim 63, wherein the tubular tip extends from the second end of the tubular body by approximately one centimeter and is curved according to a predetermined radius through an included angle in the range of ten degrees to thirty degrees.

65. The RF cannula of claim 63, wherein the spatulate blade is attached to the tubular tip along a longitudinal center of the spatulate blade.

66. The RF cannula of claim 63, wherein the spatulate blade extends laterally from either side of the tubular tip by a first predetermined dimension and longitudinally past a distal end of the tubular tip by a second predetermined distance.

67. The RF cannula of claim 63, wherein the spatulate blade conforms to a smooth, oval profile surrounding the end of the tubular tip.

68. The RF cannula of claim 63, wherein the tubular tip includes an orifice proximate a distal end of the tubular tip for releasing a liquid substance therefrom.

69. The RF cannula of claim 63, wherein the insulated tubular body is configured to receive an RF electrode configured as a thin, conductive wire that extends through the insulated tubular body into conductive contact with the tubular tip.

70. The RF cannula of claim 63, wherein the hub includes a locking interface for securing the RF electrode within the insulated tubular body.